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References: WHC-CM-3-4

27

Complete for all Types of Release

Purpose

- ☐ Speech or Presentation
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New ID Number SNS 3-4-92 PO 240-200 Rev C23

~~WHC-CM-5-9~~ SEE LIST INSIDE

Existing ID Number (include revision, volume, etc.)

PO-240-200 REV C-23, PO-020-140, PO-320-009 Rev C6, WHC-CM-5-7 Rev 2

If previously cleared, list ID number.

Date Release Required 3-5-92

Title: See attached DOCUMENTS FOR PUREX TK-F18 TANK ECOLOGY INSPECTION

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Title of Journal

Group or Society Sponsoring

Date(s) of Conference or Meeting

City/State

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Will material be handed out? ☐ Yes ☐ No

Title of Conference or Meeting

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer Name (printed)	Signature	Date
Classification/Unclassified Controlled Nuclear Information	☐	☒			
Patent - General Counsel	☐	☒	B.D. Williamson	B.D. Williamson	3/4/92
Legal - General Counsel	☒	☐	B.D. Williamson	B.D. Williamson	3/4/92
Applied Technology/Export Controlled Information or International Program	☐	☒			
WHC Program	☒	☐	STEVE SZENDRE FOR CHARLEY MERRY Stu Szendre per telecon with Charly Merry		3-4-92 3-3-92
Communications	☐	☒	D.A. Brown	D.A. Brown	3-5-92
DOE-RL Program	☒	☐	R.G. Holt	R.G. Holt	3/05/92
Publications Services	☐	☒			
Other Program	☐	☒			
References Available to Intended Audience	☐	☒	Historical References		
Transmit to DOE-HQ/Office of Scientific and Technical Information	☐	☒			

Information conforms to all applicable requirements. The above information is certified to be correct.

Author/Requestor (Printed/Signature) Steve Szendre Stu A Szendre — Date 3-3-92

Responsible Manager (Printed/Signature) B.G. Erlandson — Date

Intended Audience

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INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

Stamp is required before release. Release is contingent upon resolution of mandatory comments.

INFORMATION

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PO 240-200 RWC23

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Responsible Manager (Printed/Signature)

List of Documents included in this package

1) Purex Plant Operating Procedure for U Cell Waste and Transfer to Underground Storage - Document No. PO-240-200. Rev C-23

2) Purex Plant Operating Procedure "Perform Intra-Plant General Transfers for Purex - Document No. PO-020-140 Rev C-0

3) Purex Plant Operating Procedure "Perform Sump Handling and TK-F18 Disposal" - Document No. PO-320-009 Rev C-15

4) Procedure Change Authorization change to procedure PO-240-200 Rev C-23 PCA # PO-2479.

5) Page from the Purex Operation Log for 1-3-92

6) Purex Tank Liquid Level Sheet - Document No. TCM-P-130-00001 Rev A-0

7) PUREX/UO3 Plant Morning Report dated January 6, 1992

8) Environmental Spill Checklist - Filled out by Environmental Protection Personnel for the January 3 incident.

9) PUREX/UO3 PLANT ADMINISTRATION Manual WHC-CM-5-9 Rev 2

10) Drawings H-2-63243-1, H-2-52087, H-2-52453, H-2-52521-1,2,3, H-2-63286-1, and H-2-63243-2

9 2 1 2 7 0 2 3 0

HANDLE U CELL WASTE AND TRANSFER TO UNDERGROUND STORAGE

I. SYSTEM DESCRIPTION

This procedure provides instructions for the handling of U Cell waste. Liquids from the 291 Area, such as stack condensate, main filter drainage, cooler water, sump accumulations from the 293-A Building, etc. are collected in TK-216-A2 and routinely jetted to acid waste storage tank TK-U3 for disposal to underground waste storage. Miscellaneous lab wastes are also routed to either acid waste storage tank, TK-U3 or TK-U4, for disposal. When a batch is accumulated in TK-U3 or TK-U4, the lab waste is diverted to the empty tank and the batch is sampled. The batch is neutralized with caustic (NaOH) on the basis of the sample results and transferred to underground storage.

Since waste from TK-U3 and TK-U4 is transferred to Tank Farms it falls under the authority of Land Disposal Restriction (LDR) regulations. In addition to filling out standard transfer forms, a LAND DISPOSAL RESTRICTION NOTIFICATION FORM must be filled out and transmitted to Tank Farms for each transfer. A further discussion of LDR concerns for PUREX can be found in Appendix A, LDR Requirements for PUREX.

The PUREX plant is permitted by the Part A Permit to treat but not store dangerous waste. According to WAC 173-303-200, a generator may accumulate (store) dangerous waste on-site without a permit for 90 days or less after the date of generation. Therefore, once dangerous waste starts accumulating in TK-U3 or TK-U4, it must be sent to Tank Farms before the 90 days have expired to meet regulatory requirements. Unless samples prove that the accumulation is not hazardous waste, the accumulation will be considered hazardous waste.

Equipment involved:

- U Cell, Acid Waste Storage Tank TK-U3
  Acid Waste Storage Tank TK-U4.

OFFICIALLY RELEASED
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II. PRESTART CONDITION

None.

PUREX PROCESS CONTROL
FILE COPY
DO NOT REMOVE

Changes to this procedure, including PCAs, require Safeguards approval. SAFEGUARDS

III. SAFETY

Criticality - Do not exceed 500 g Pu critical mass limit for TK-U3 or TK-U4.

Do not exceed 0.013 g/L of Pu (0.05 g/gal of Pu) in solutions transferred to UGS.

Warning - Spilled or leaked waste and accumulated precipitation must be removed from the U Cell sumps within 24 hrs, or in as timely a manner as is possible to prevent harm to human health and the environment. This will ensure full compliance with the regulatory requirements.

Caution - Add the caustic for neutralization slowly to prevent pressurization or overheating of the vessel.

OSR REQUIREMENT

Be aware that sending tank WF must be continuously monitored during jet transfers to UGS. Stop transfer form tanks if liquid level fails to decrease for 3 min and verify that the automatic airblow of the transfer line is initiated. Do not jet tanks completely empty. If flow stops, do not allow the jet to operate as thermal expansion during jetting or steam purging could damage pipes or the receiving tank could become pressurized (LCO 8.6.3).

Solutions (excluding water flushes) discharged directily to mild-steel storage tanks or through mild-steel lines shall be adjusted for pH and chemical composition to meet Tank Farms Limits (LCS 8.6.1).

The pH of waste solutions must be greater than 12.0 and nitrite (NO_2) must be greater than 0.011M to prevent excessive corrosion to the mild steel waste storage tanks (LCS 8.6.1).

Applicable Safety Documents - Provisions of Radiation Work Requirements and Permits Manual, WHC-CM-4-15, Radiation Work Permits A-KEH-024, and A-KEH-033, and Radiation Protection Manual, WHC-CM-4-10 along with Criticality Prevention Specification (CPS) CPS-465-40000, apply to all work performed under this procedure.

A discussion of OSR requirements can be found in WHC-CM-5-24, PUREX PROCESS CONTROL MANUAL, Add. I.

IV. TOOLS AND SUPPLIES

Dip Sampler
100-mL Polyethylene Bottle
Ice Cream Carton
Paper Towels
TANK TO UGS TRANSFER DATA SHEET
INPUTS TO TK-U3 AND TK-U4 DATA SHEET
LAND DISPOSAL RESTRICTION NOTIFICATION FORM
PO-040-301, TK-302-A GENERAL SURVEILLANCE AND LIQUID LEVEL MEASUREMENT

V. TABLE OF CONTENTS

9212-7923

VI. PROCEDURE

DATE:_____ OPERATOR

A. TRANSFER SUA CONTENTS TO TK-U4 OR SUB TO TK-U3

NOTE - Once dangerous waste starts accumulating in TK-U3 or TK-U4, it must be sent to Tank Farms within 90 days to meet regulatory requirements.

1. Jet SUA contents to TK-U4 or SUB to TK-U3 using JC-SUA-3 or JC-SUB until WFR-SUA or WFR-SUB levels out. When receiving tank WF exceeds 10, turn on agitator.

NOTE - If jet does not operate properly and WFR-SUA or WFR-SUB does not decrease, proceed Task F.

2. Record time and date of transfer on WFR-SUA or WFR-SUB strip chart and on INPUTS TO TK-U3 AND TK-U4 DATA SHEET.

3. Notify supervision that transfer of SUA or SUB contents is complete. If tank weight factor is equal to or greater than 60% or as directed by supervision, go to Task D.

B. EMPTY SX3 SUMP

NOTE - Once dangerous waste starts accumulating in TK-U3 or TK-U4, it must be sent to Tank Farms within 90 days to meet regulatory requirements.

- Completion of each step indicated by a blank line must be documented by initialing HANDLE U CELL WASTE AND TRANSFER TO UNDERGROUND STORAGE procedure. Completed procedure must be returned to supervision.

1. Ensure that there is sufficient room in 216-A-TK-2 and TK-U3 to hold SX3 solution. If not, notify supervision.

2. Label all solution transfers through the SX3 sump on the WF chart recorder WFR-SX3.

3. Record the SX3 WF and volume.
WF_____ Volume_____ _____

B. EMPTY SX3 SUMP (Cont.)

DATE_____ OPERATOR

4. Jet SX3 sump contents to 216-A-TK-2.

   a. Valve in steam to J-SX3-1 by opening steam valve XL044-11.

   b. Valve in steam to J-SX3-2 by opening steam valve XL044-14.

   c. Jet SX3 to minimum heel and then stop transfer by closing steam valves XL044-11 and XL044-14. _____

5. Record SX3 WF and volume.
   WF_____ Volume_____ _____

C. TRANSFER TK-216-A2 CONTENTS TO TK-U3

DATE_____ OPERATOR

NOTE - Once dangerous waste starts accumulating in TK-U3 or TK-U4, it must be sent to Tank Farms within 90 days to meet regulatory requirements.

1. When TK-216-A2 WF reaches approximately 65% of chart as indicated on WFR-216-A2, request supervision to allow the transfer of TK-216-A2 contents to TK-U3.

2. Check WF in TK-U3. If TK-U3 WF exceeds 40% of chart as indicated on WFR-U3, notify supervision.

3. Jet TK-216-A2 contents to TK-U3.

   a. If needed, request power operator to valve in steam supply.

   b. Activate jet, using VS-216.

   c. When TK-U3 WF exceeds 10, turn on agitator.

4. Mark date, time and TK-216-A2 WF on WFR-U3 to identify the transfer.

5. Notify supervision that transfer of TK-216-A2 contents to TK-U3 is complete.

9 2 1 2 7 9 0 2 5

D. NEUTRALIZE TK-U3 OR TK-U4 CONTENTS

DATE_____ OPERATOR

NOTE - The completion of each step indicated by a blank line must be documented by initialing procedure. Completed procedure must be returned to supervision.

1. When TK-U3 or TK-U4 is ready to be sampled, place the SAMPLE tag on the inside face of the WF recorder of tank to be sampled, either WFR-U3 or WFR-U4 in HECR, so that it is plainly visible.

2. When WF reading for tank to be sampled increases to approximately 60% of chart as indicated on WFR-U3 or WFR-U4 strip chart, or as directed by supervision, notify supervision of status and have dispatcher request samples. _____

3. Transfer lab waste discharge to TK-U3 or TK-U4 by positioning valve selector VS-U3 and VS-U4 to position for tank nopt being sampled and neutralized.

4. Record sample number obtained from dispatcher on TANK TO UGS TRANSFER DATA SHEET. Have sample delivered to the Lab.

5. Record requested analytical data and request supervision's/shift engineer's verification on DATA SHEET.

6. Obtain supervision's/shift engineer's signature on DATA SHEET for approval of chemical addition to tank.

NOTE - Supervision/shift engineer will calculate caustic and nitrite amounts to be added and record on DATA SHEET.

7. Prepare for chemical addition by starting TK-U3 or TK-U4 agitator using appropriate START button. If caustic is not needed, go to Step 12.

8. Reset flow meter/batch controller to 0 and close valve U-096-04.

9. Slowly open caustic valves U-096-05 and U-096-03, then open valve U-085-02 for TK-U3 or U-096-02 for TK-U4. _____

10. When flow meter indicates the amount as calculated on DATA SHEET has been added, close U-096-05. _____

11. Close valve U-096-03, then close valve U-085-02 for TK-U3 or valve U-096-02 for TK-U4. _____

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D. NEUTRALIZE TK-U3 OR TK-U4 CONTENTS

DATE_____ OPERATOR

12. If $NaNO_2$ solution addition is not required, proceed as follows:

    a. If caustic was added and additional sampling is required, proceed to Step 17.

    b. If caustic was not added, proceed to Step 20.

13. If $NaNO_2$ solution addition is required, ensure $NaNO_2$ is available and that the 7004 header is charged by contacting AMU operator.

14. Reset flow meter/batch controller to 0.

NOTE - For addition of $NaNO_2$ to TK-U3, perform Step 15.
For addition of $NaNO_2$ to TK-U4, perform Step 16.

15. Add $NaNO_2$ to TK-U3. _____

    a. Open following valves:

    - U-085-02
    - U-096-03
    - U-096-04.

    b. When specified amount of $NaNO_2$ has been added, close following valves:

    - U-085-02
    - U-096-03
    - U-096-04.

16. Add $NaNO_2$ to TK-U4. _____

    a. Open following valves:

    - U-096-04
    - U-096-03
    - U-096-02.

    b. When specified amount of $NaNO_2$ has been added, close following valves:

    - U-096-04
    - U-096-03
    - U-096-02.

17. Thirty min after adding caustic and nitrite, request two samples of TK-U3 or TK-U4 solution. _____

18. Record requested analytical data on DATA SHEET.

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D. NEUTRALIZE TK-U3 OR TK-U4 CONTENTS (Cont.)

DATE_____

19. Request supervision and shift engineer verification of sample results and proceed as follows. Refer to Figure 1.

    a. If pH is greater than 12.0 and nitrite is greater than .011M, proceed to Step 20.

    b. If pH is greater than 9.0 and less than 12.0, supervision and engineering may specify amount of caustic and/or nitrite to add per Steps 6-16 and transfer per calculated values. Go to Step 20.

    c. If pH is less than 9.0, go to Step 7.

OSR REQUIREMENT

Ensure the pH of waste solutions is greater than 12.0 and nitrite concentrations are 0.011M or greater to prevent excessive corrosion to the mild-steel waste storage tanks (LCS 8.6.1).

    d. If pH is less than 12.0 or nitrite is less than 0.011M, repeat Steps 6-19.

NOTE - Verification of LDR considerations must be documented by attaching a copy of DATA SHEET to the LAND DISPOSAL RESTRICTION NOTIFICATION FORM.

20. When pH is greater than 12.0 and nitrite is 0.011M or greater, notify supervision that TK-U3 or TK-U4 is ready for transfer.

21. When sample results are within specification, make LDR determination per Task G. Ensure that a copy of the DATA SHEET containing the sample results is attached to FORM.

E. TRANSFER TK-U3 OR TK-U4 CONTENTS TO UGS

NOTE - The completion of each step indicated by a blank line must be documented by initialing procedure. Completed procedure must be returned to supervision.

- The Operations manager must sign the SUPERVISION NOTIFICATION OF TANK FARMS MANAGEMENT BEFORE TRANSFER block before proceeding with this procedure.

1. Request that the Operations manager and the shift engineer sign the TANK TO UGS TRANSFER DATA SHEET authorizing transfer to Tank Farms when other procedural requirements are met.

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E. TRANSFER TK-U3 OR TK-U4 CONTENTS TO UGS (Cont.)

DATE_____ OPERATOR

2. Request the Operations manager to contact Tank Farms management and obtain approval to transfer this batch of waste to UGS. Ensure that NOTIFICATION FORM has been faxed to Tank Farms.

NOTE - The information in Step 3 should be recorded just before transfer.

3. Record the following for TK-U3 or TK-U4 on TRANSFER DATA SHEET:

- Initial WF as indicated on WFR-U3 or WFR-U4
- Initial SpG
- Temperature as indicated on TR-U3 or TR-U4.

NOTE - Data may be collected either manually per PO-040-301 or by calling Tank Farms Operations (3-2618).

4. Upon receiving approval form 242-A Evaporator Control Room operator to transfer TK-U3 or TK-U4 solution, perform the following:

   a. Obtain and record TK-302A initial reading

   b. Provide pre-transfer volume data to evaporator operator.

5. Record time and date of transfer on WFR-U3 or WFR-U4 strip chart. _____

6. If not already on, start TK-U3 or TK-U4 agitator using appropriate START button. _____

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E. TRANSFER TK-U3 OR TK-U4 CONTENTS TO UGS (Cont.)

DATE_____ OPERATOR

NOTE - If Tank Farms leak detector interlock stops transfer, supervision must be notified. To resume transfers, the appropriate jet controller, JC-U3 or JC-U4, must be turned off and then back on.

- If jet malfunctions, refer to Task F.

OSR REQUIREMENT

Be aware that sending tank WF must be continuously monitored during jet transfers to UGS. Stop transfer from tanks if liquid level fails to decrease for 3 min and verify that the automatic airblow of the transfer line is initiated. Do not jet tanks completely empty. If flow stops, do not allow the jet to operate as thermal expansion during jetting or steam purging could damage pipes or the receiving tank could become pressurized (LCO 8.6.3).

NOTE - To transfer TK-U3 to UGS, go to Step 7.
To transfer TK-U4, go to Step 8.

7. Jet TK-U3 contents to UGS. _____

a. Open steam valves U-09-04 and U-09-03.

b. Turn jet controller JC-U3 to ON. Record beginning time and date on TRANSFER DATA SHEET.

c. Continually monitor liquid level on WFR-U3. If liquid level fails to decrease for 3 min or tank is empty, stop transfer.

NOTE - The tank agitator should shut off at 32 WF.

d. Stop agitator at 32 WF.

e. When transfer is complete, turn JC-U3 to OFF.

8. Jet TK-U4 contents to UGS. _____

a. Open steam valve U-08-04 and air valve U-08-03.

b. Turn jet contoller JC-U4 to ON. Record beginning time and date on TRANSFER DATA SHEET.

c. Continually monitor liquid level on WFR-U4. If liquid level fails to decrease for 3 min or tank is empty, stop transfer.

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E. TRANSFER TK-U3 OR TK-U4 CONTENTS TO UGS (Cont.)

DATE_____ OPERATOR

NOTE - The tank agitator should shut off at 32 WF.

8. d. If agitator does not shut off at 32 WF, push agitator STOP button.

e. When transfer is complete, turn JC-U4 to OFF.

9. Record the following on DATA SHEET:

- Time
- Final WF as indicated on WFR-U3 or WFR-U4
- SpG
- Temperature as indicated on TR-U3 or TR-U4.

10. Contact 242-A Evaporator Control Room operator and provide ending volume data. Obtain TK-302A final reading and record on DATA SHEET.

NOTE - Liquid level may be obtained manually per PO-020-301 or from Tank Farms Operations (3-2618).

11. Request the Operations manager to notify Tank Farms management that the transfer is complete. _____

NOTE - The PUREX Operations manager must sign the SUPERVISION NOTIFIATION OF TANK FARMS MANAGEMENT AFTER TRANSFER block on the DATA SHEET.

12. Close the steam valve U-09-04 or U-08-04 and initial DATA SHEET. _____

13. Turn in completed DATA SHEET to supervision. _____

F. TROUBLESHOOT JET

1. Position jet controller to OFF.

TRANSFER	JET
SUA to TK-U4	JC-SUA-3
SUB to TK-U3	JC-SUB
TK-U3 to UGS	JC-U3
TK-U4 to UGS	JC-U4

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F. TROUBLESHOOT JET (Cont.)

Flush Jet

2. Open steam valve.

NOTE - Steam valve vent line must be checked to ensure that there are no leaks. Supervision must be notified if vent line is leaking.

TRANSFER	VALVE
SUA to TK-U4	U11-04
SUB to TK-U3	U-7-04
TK-U3 to UGS	U-9-04
TK-U4 to UGS	U-8-04

OSR REQUIREMENT

Be aware that sending tank WF must be continuously monitored during jet transfers to UGS. Stop transfer from tanks if liquid level fails to decrease for 3 min and verify that the automatic airblow of the transfer line is initiated. Do not jet tanks completely empty. If flow stops, do not allow the jet to operate as thermal expansion during jetting or steam purging could damage pipes or the receiving tank could become pressurized (LCO 8.6.3).

3. Position jet controller to ON.

TRANSFER	JET
SUA to TK-U4	JC-SUA-3
SUB to TK-U3	JC-SUB
TK-U3 to UGS	JC-U3
TK-U4 to UGS	JC-U4

4. Observe appropriate WFR indication. If WF is not decreasing, proceed to Step 5. If it is decreasing, take the following action:

TRANSFER	WFR	ACTION
SUA to TK-U4	WFR-SUA	Return to Task A
SUB to TK-U3	WFR-SUB	Return to Task A
TK-U3 to UGS	WFR-U3	Return to Task E
TK-U4 to UGS	WFR-U4	Return to Task E

9 2 1 2 7 9 3 2 2 5 2

F. TROUBLESHOOT JET (Cont.)

5. Close steam valve.

TRANSFER	VALVE
SUA to TK-U4	U11-04
SUB to TK-U3	U-7-04
TK-U3 to UGS	U-9-04
TK-U4 to UGS	U-8-04

6. Attach quick connect water hose to jet strainer valve. Open water hose valve, then open jet strainer valve.

TRANSFER	STRAINER VALVE
SUA to TK-U4	U11-01
SUB to TK-U3	U-7-01
TK-U3 to UGS	U-9-01
TK-U4 to UGS	U-8-01

7. After 2 min, close strainer valve, then close water hose valve.

TRANSFER	STRAINER VALVE
SUA to TK-U4	U11-01
SUB to TK-U3	U-7-01
TK-U3 to UGS	U-9-01
TK-U4 to UGS	U-9-01

8. Open steam valve.

TRANSFER	VALVE
SUA to TK-U4	U11-04
SUB to TK-U3	U-7-04
TK-U3 to UGS	U-9-04
TK-U4 to UGS	U-8-04

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F. TROUBLESHOOT JET (Cont.)

OSR REQUIREMENT

Be aware that sending tank WF must be continuously monitored during jet transfers to UGS. Stop transfer from tanks if liquid level fails to decrease for 3 min and verify that the automatic airblow of the transfer line is intiated. Do not jet tanks completely empty. If flow stops, do not allow the jet to operate as thermal expansion during jetting or steam purging could damage pipes or the receiving tank could become pressurized (LCO 8.6.3).

9. Observe appropriate WFR indication.

   a. If it is decreasing, take the following action:

TRANSFER	WFR	ACTION
SUA to TK-U4	WFR-SUA	Return to Task A
SUB to TK-U3	WFR-SUB	Return to Task A
TK-U3 to UGS	WFR-U3	Return to Task E
TK-U4 to UGS	WFR-U4	Return to Task E

   b. If WFR indication is not decreasing, turn off jet and notify supervision.

9 2 1 3 1 7 9 1 2 3 4

G. PERFORM LDR NOTIFICATION

1. Enter data as requested on the LAND DISPOSAL RESTRICTION NOTIFICATION FORM.

2. Enter tank number and Batch ID number on FORM.

3. Using Table 1, enter the appropriate waste code(s) for tank to be transferred, either TK-U3 or TK-U4, as listed in the column labeled "Waste Code".

   NOTE - D002 is the Waste Code for Corrosivity (pH) $\geq$12.5. If the pH is <12.5, this code should not be entered.

   a. If the pH is greater than 12.5, enter the D002 waste code on the FORM and enter DEACT in the TREATMENT STANDARD column. Enter other codes and treatment standards as listed on Figure 2. Enter N/A where shown in figure.

   b. If the pH is less than 12.5, enter waste codes and treatment standards as indicated in Figure 3. Enter N/A where shown in figure.

4. Have supervision or authorized delegate sign FORM.

5. Ensure that a copy of the TANK TO UGS TRANSFER DATA SHEET containing sample results is attached to FORM.

6. FAX the FORM to the Tank Farms Shift manager on 3-3404 before making transfer.

7. Make a copy of the FORM for retention.

8. Mail the FORM original to the appropriate Tank Farms Receiving Cognizant Engineer at MSIN R1-51.

NOTE - A list of the cognizant engineers and phone numbers is listed in Table 2.

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APPENDIX A

LDR REQUIREMENTS FOR PUREX

Notification requirements for waste falling under Land Disposal Restriction (LDR) regulations are stated in 40CFR 268.7. Application of the requirements for PUREX means that every shipment or transfer of waste to Double Shell Tanks (DSTs) must be accompanied by the appropriate notification.

PUREX waste constituents are checked for LDR determination by monitoring such characteristics as corrosivity, reactivity, ignitability and Toxicity Characteristic (TC). (Lead and mercury are examples of TC wastes.) Monitoring of constituents can be by sampling or by process knowledge. Since most of the constituents are not routinely sampled for, PUREX process knowledge dictates that certain constituents appear in specific waste streams (Refer to Table 2). PUREX waste volumes become LDR when the following limits are exceeded:

CONSTITUENT	WASTE CODE	LIMIT
Ignitability	D001	Deact*
Corrosivity	D002	pH $\leq$2 or $\geq$12.5
Reactivity	D003	Deact*
Arsenic	D004	5 mg/L
Barium	D005	5 mg/L
Cadmium	D006	1 mg/L
Chromium	D007	5 mg/L
Lead	D008	5 mg/L
Mercury	D009	0.2 mg/L
Selenium	D010	1 mg/L
Silver	D011	5 mg/L

* Deact means to make amenable to treatment standards by a wide variation of means. Tanks TK-U3 and TK-U4 are the only tanks concerned with ignitability and reactivity as a result of past waste dumping practices.

In addition to Pu and U, the PUREX sample schedule requires a pH analysis for each batch of waste transferred to DSTs. This is to insure that the Tank Farm's specification of pH >2 or <12.5 is met. Waste with a pH between 12 and 12.5 is a special case as it is transferrable and not LDR waste. Routine analysis for other metals (TC wastes) is not performed and process knowledge is used to determine the presence of those constituents. Streams containing those constituents are considered LDR even though the levels may be below the limits.

9212792327

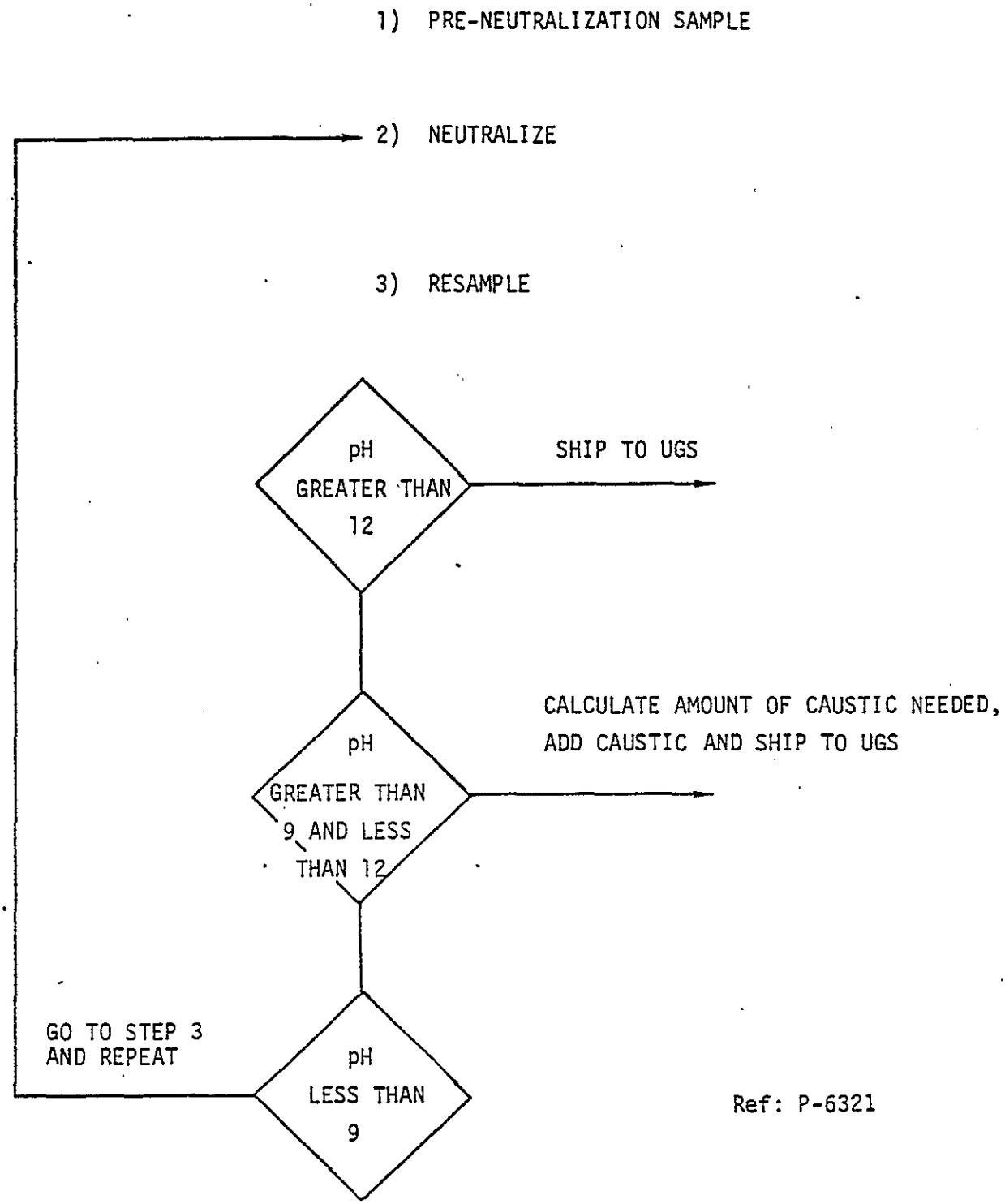

FIGURE 1 - NEUTRALIZATION LOGIC DIAGRAM

FIGURE 2

LAND DISPOSAL RESTRICTION NOTIFICATION FORM

Facility PUREX

October 8, 1990

Source TK-U3

EXAMPLE ONLY

Batch No. 12347

The following restricted waste does not meet the treatment standards for the following constituents:

WASTE CODE	TREATMENT STANDARD	PROHIBITION
D002	DEACT	N/A
D001	DEACT	N/A
D003	DEACT	N/A
D004	5 mg/l	N/A
D005	5 mg/l	N/A
D006	1 mg/l	N/A
D007	5 mg/l	N/A
D008	5 mg/l	N/A
D009	0.2 mg/l	N/A
D010	1 mg/l	N/A
D011	5 mg/l	N/A

The following restricted waste meets the treatment standards for the following constituents:

WASTE CODE	TREATMENT STANDARD	PROHIBITION
N/A	N/A	N/A

Waste analysis or process knowledge of these constituents is attached.

_____
(Signature)

9213786

FIGURE 3

LAND DISPOSAL RESTRICTION NOTIFICATION FORM

Facility PUREX

Date October 8, 1990

Source TK-U3

EXAMPLE ONLY

Batch No. 12347

The following restricted waste does not meet the treatment standards for the following constituents:

WASTE CODE	TREATMENT STANDARD	PROHIBITION
D001	DEACT	N/A
D003	DEACT	N/A
D004	5 mg/l	N/A
D005	5 mg/l	N/A
D006	1 mg/l	N/A
D007	5 mg/l	N/A
D008	5 mg/l	N/A
D009	0.02 mg/l	N/A
D010	1 mg/l	N/A
D011	5 mg/l	N/A

The following restricted waste meets the treatment standards for the following constituents:

WASTE CODE	TREATMENT STANDARD	PROHIBITION
N/A	N/A	N/A

Waste analysis or process knowledge of these constituents is attached.

_____
(Signature)

9212792239

TABLE 1

LDR WASTE CODES

VESSEL	CORROSIVE pH ≥12.5 (D002)	Cd (D006)	Cr (D007)	Pb (D008)	WASTE CODE	TREATMENT STANDARD
E5-Declad	X		X		D001	DEACT
Metathesis Rinse	X		X		D002	DEACT
Spent Metathesis	X				D003	DEACT
F15/16	X	X	X	X	D004	5 mg/l
F18	X	X	X	X	D005	5 mg/l
U3/U4*	X	X	X	X	D006	1 mg/l
					D007	5 mg/l
G7	X				D008	5 mg/l
G8	X				D009	0.2 mg/l
R8	X				D010	1 mg/l
					D011	5 mg/l

* Also show the following waste codes for TK U3/U4:
D001, D003, D004, D005, D009, D010, D011

9213170

TABLE 2

TANK FARMS COGNIZANT ENGINEERS		PHONE
AW/AN Farms	John Harris	3-3515
DCRTs/AP Farm	Don Scully	3-2408
SY Farm	Ken Engelhardt	3-1148
AY/AZ	Ryan Dodd	3-5629
204AR	Paul Johnson	3-1970

TANK FARMS ENVIRONMENTAL ENGINEERING	PHONE
Joel Eacker, Manager	3-5090
Dale Halgren	3-4987

2150E FAX

3-2908 or 3-4095

9212792111

LAND DISPOSAL RESTRICTION NOTIFICATION FORM

Facility PUREX

Source _____ DATE_____

Batch No# _____

The following restricted waste does not meet the treatment standards for the following constituents:

WASTE CODE	TREATMENT STANDARD	PROHIBITION
		N/A

The following restricted waste meets the treatment standards for the following constituents:

WASTE CODE	TREATMENT STANDARD	PROHIBITION
N/A	N/A	N/A

Waste analysis or process knowledge of these constituents is attached.

_____
(Signature)

9212176132

TANK TO UGS TRANSFER DATA SHEET
F18/R8/G8/U3/U4

SHIPPING TANK		DATE		CATCH TANK 302-A	BEFORE-TRANSFER	AFTER-TRANSFER
RECEIVING TANK		BATCH #		TAPE READING (in)		

BOARD READINGS

TANK	PRE-NEUTRALIZATION	PRE-TRANSFER	POST TRANSFER	FLUSH VOLUME
WF				
SpG				
TEMP				
GALLONS	(a)		(c)	

Reference Only

PRE-NEUTRALIZATION SAMPLE RESULTS				
SAMPLE NUMBERS			..SFERRED	
SpG			..CH DATE/TIME	/
U(g/L)			..NSFER DATE/TIME	/
Pu(g/L) CRITICALITY LIMIT<.013 g/L			..CAT LOAD(BTU'S)	FUEL AGE
Np(g/L)				
pH(LAB)				
CAUSTIC RATIO	(d)			
MGR/ENGR VERIFY				

TOTAL Pu IN BATCH

_____=[Pu(g/L) X (a) X 3.785]

(Criticality limit less than 200 g Pu)

*OSR REQUIREMENT (REFERENCE LCS 8.6.2) (EXCLUDING FLUSHES)

All transfers: pH >12, NO2> .011M, F18 transfers to boiling waste only: OH >.8m	CORRECTIVE ACTION: Add caustic or sodium nitrite as necessary to bring pH and NO2 conc. within spec.

NaOH Calculations: (if using KOH, multiply NaOH calc. by 1.42)

1st addition=(a) x (d) / (12.92)

2nd addition=(e)*(a+f+g)/(12.92)

POST NEUTRALIZATION CHEMICAL ADDITION DATA:

TANK ADDITIONS	1st ADD	2nd ADD	OTHER ADD	TOTAL
CAUSTIC		(f)		
NaNO2		(g)		
SUPV PERMISSION				
ENGR PERMISSION				

POST NEUTRALIZATION SAMPLE RESULTS

LAB RESULTS	1ST NEUTRALIZATION		2ND NEUTRALIZATION		SUPERVISION NOTIFICATION OF TANK FARMS MANAGEMENT
SAMPLE NUMBERS					
pH(LAB)*					
NaNO2*					BEFOR TRANSFER PUREX/TF INIT
CAUSTIC RATIO	(e)				
MGR VERIFY					AFTER TRANSFER
ENGR VERIFY					

PERMISSION TO TRANSFER: OPERATIONS SUPERVISOR _____

ENGINEER _____

INPUTS TO TK-U3 AND TK-U4 DATA SHEET

SUMPS SUA AND SUB TO TK-U3 OR TK-U4 TRANSFERS

Time	Date	Sump Transferred From	To Tank U3 or U4	Before Transfer		After Transfer		Oper Init
				TK WF	TK SpG	TK WF	TK SpG	

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